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TO : The Files - Contract RD-107, T.O. 8 DATE: 26 February 1959

FROM : [REDACTED]

SUBJECT: Trip Report - Thermoelectric Generator, [REDACTED]

1. On 17 February 1959 a visit was made to the [REDACTED] Facilities of [REDACTED] to monitor progress on Contract RD-107, Task Order 8, development of the thermoelectric generator, [REDACTED] Participating in the discussions were:

[REDACTED]

2. Development of the [REDACTED] is progressing smoothly and the engineering model should be completed by the end of this month. After completing the fabrication of the generator, the contractor will test it for approximately 200 hours and then make delivery for evaluation by the R&D Laboratory.

3. The lead-telluride elements used in the generator were manufactured by the [REDACTED]. One end of the lead-telluride piece was cast to a carbon steel contact plate and the other end was soldered to a second contact plate. When measuring the contact resistance of these bonded lead-telluride specimens, [REDACTED] noted that the contact points exhibited a rectifying effect when a small current was passed through them. However, if the current exceeds 100 milliamperes, this effect is no longer present and the contact points become pure resistances. Since this rectification phenomenon occurs only at low currents, the efficiency of the generator will not be affected.

4. Because the contractor has been able to keep the contact resistance low on the bonded thermocouples, the internal resistance of the [REDACTED] should be very low. [REDACTED] estimated that the internal resistance would be approximately 3 ohms for this model which will have 20 thermocouples connected in series.

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5. [] discussed the proposal, which has been submitted to this Office, for a reuseable water-activated battery. It was mentioned that the contractor may have some difficulty in procuring the silver clad magnesium. [] was of the opinion that it may take as long as 60 to 90 days to obtain this material. Without the material, the project cannot be started and a delay in delivery of the batteries could result. [] felt, however, that by the time the proposal was accepted, the materials could be ordered and the delay avoided.

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